



PATENT SPECIFICATION

649,296

*Date of Application and filing Complete Specification :
June 10, 1948. No. 15667/48.*

Application made in United States of America on June 13, 1947.

Complete Specification Published : Jan. 24, 1951.

Index at Acceptance :— Classes 44, E13x; 89(i), A7.

COMPLETE SPECIFICATION.

SPECIFICATION NO. 649,296

By a direction given under Section 17(1) of the Patents Act 1949 this application proceeded in the name of United-Carr Fastener Corporation, a Corporation organized under the laws of the State of Massachusetts, of 31 Ames Street, Cambridge, Massachusetts, United States of America.

5 THE PATENT OFFICE,
25th April, 1951.

DS 79810/1(7)/3520 160 4/51 R

10 America), do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

15 The present invention relates to fastener units and mountings for fastening members and the like and especially stud-engaging fastener members and aims generally to improve existing constructions of that type.

20 One of the primary objects of the invention is the provision of an improved mounting for stud-engaging fastener members whereby the fastener member may be readily and securely attached to an apertured support.

25 According to the present invention a fastener unit adapted to be mounted in an aperture in a support comprises a stud-engaging fastener part having a head adapted to overlie the portions of one face of the support adjacent to the aperture and a stud-receiving barrel portion adapted to project through said aperture, and a retainer member comprising a base provided with an integral flange overlying the head of the stud-engaging fastener, and integral resilient members adapted to project through the support aperture, said resilient members having opposed end or shoulder portions one of which engages the barrel and the other being adapted to engage the opposite face of the support to the fastener part head.

40 To enable the invention to be fully understood it will now be described with reference to the accompanying drawings, in which :—

45 Fig. 1 is a plan view of a typical installation illustrating one embodiment of the invention ;

Fig. 6 is a horizontal sectional view of the assembly shown in Fig. 5, as taken on the line 6—6 thereof ; and

Fig. 7 is an under plan view of the installation shown in Fig. 5.

Referring to the accompanying drawings, the invention comprises a retainer or attaching member adapted for snap fastener engagement with an apertured support and provided with means for assembling therewith a stud-engaging fastener member, herein illustrated as a screw-threaded nut device.

As shewn in the accompanying drawings a stud-engaging fastening part comprises a sheet metal nut member 10, having a tubular internally threaded barrel 11 and an integral laterally extending head or flange 12 at one end of the barrel.

Referring to Figs. 1 to 4 of the drawings, the retainer or attaching member comprises a base portion 15 having a peripheral rim 16 or the like for engagement with the flange 12 or edge portion of the stud-engaging fastener member, said base portion 15 being centrally apertured as at 17 for the passage of the barrel 11 and a stud to be secured thereto.

The retainer or attaching member is provided with support-engaging means adapted for insertion through an aperture 1 of a suitable support 2, and according to the illustrated embodiment of the invention, the support-engaging means are formed from portions of the base portion displaced to provide the aperture 17.

As herein illustrated, the support-engaging means comprises an annular series of support-engaging fingers 18 spaced circumferentially of the barrel 11 and each spaced from the



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COMPLETE SPECIFICATION.

Improvements in and relating to Means for Mounting Fastener Members on a Support.

We, CINCH MANUFACTURING CORPORATION, a Corporation organised under the laws of the State of Illinois, United States of America, of 2335 West Van Buren Street, Chicago, Illinois, United States of America, (Assignees of WARREN L. TRAFTON, a citizen of the United States of America, of 18024 Appoline Street, Detroit, Michigan, United States of America), do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

The present invention relates to fastener units and mountings for fastening members and the like and especially stud-engaging fastener members and aims generally to improve existing constructions of that type.

One of the primary objects of the invention is the provision of an improved mounting for stud-engaging fastener members whereby the fastener member may be readily and securely attached to an apertured support.

According to the present invention a fastener unit adapted to be mounted in an aperture in a support comprises a stud-engaging fastener part having a head adapted to overlie the portions of one face of the support adjacent to the aperture and a stud-receiving barrel portion adapted to project through said aperture, and a retainer member comprising a base provided with an integral flange overlying the head of the stud-engaging fastener, and integral resilient members adapted to project through the support aperture, said resilient members having opposed end or shoulder portions one of which engages the barrel and the other being adapted to engage the opposite face of the support to the fastener part head.

To enable the invention to be fully understood it will now be described with reference to the accompanying drawings, in which :—

Fig. 1 is a plan view of a typical installation illustrating one embodiment of the invention ;

Fig. 2 is a side elevation of the installation shown in Fig. 1 ;

Fig. 3 is an under plan view of the installation shown in Figs. 1 and 2 ;

Fig. 4 is a vertical sectional view as taken on the line 4—4 of Fig. 1 ;

Fig. 5 is a vertical sectional view of a modified form of the invention ;

Fig. 6 is a horizontal sectional view of the assembly shown in Fig. 5, as taken on the line 6—6 thereof ; and

Fig. 7 is an under plan view of the installation shown in Fig. 5.

Referring to the accompanying drawings, the invention comprises a retainer or attaching member adapted for snap fastener engagement with an apertured support and provided with means for assembling therewith a stud-engaging fastener member, herein illustrated as a screw-threaded nut device.

As shewn in the accompanying drawings a stud-engaging fastening part comprises a sheet metal nut member 10, having a tubular internally threaded barrel 11 and an integral laterally extending head or flange 12 at one end of the barrel.

Referring to Figs. 1 to 4 of the drawings, the retainer or attaching member comprises a base portion 15 having a peripheral rim 16 or the like for engagement with the flange 12 or edge portion of the stud-engaging fastener member, said base portion 15 being centrally apertured as at 17 for the passage of the barrel 11 and a stud to be secured thereto.

The retainer or attaching member is provided with support-engaging means adapted for insertion through an aperture 1 of a suitable support 2, and according to the illustrated embodiment of the invention, the support-engaging means are formed from portions of the base portion displaced to provide the aperture 17.

As herein illustrated, the support-engaging means comprises an annular series of support-engaging fingers 18 spaced circumferentially of the barrel 11 and each spaced from the

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base portion 15 of the retainer on the side opposite the peripheral retaining rim 16 and integrally connected thereto by resilient connecting arms 19 joined to the fingers 18 adjacent the centre thereof so that portions of the fingers 18 extend beyond the arms 19 in opposite directions. As illustrated the fingers are obliquely disposed with respect to the axis of the stud-engaging fastener member 10 and support aperture 1, and are of such length that opposite ends or shoulders 20—20a thereof, respectively, bear against a face of the support and the barrel 11. The connecting arms 19, connecting the fingers 18 and base portion 15, are so shaped, as for example ogee or generally S-shaped, as to resiliently maintain the fingers 18 in a divergent oblique position with reference to the axis of the stud-engaging fastener part, but permit their flexing to a position more closely parallel to the walls of the aperture 1 as the support-engaging members are forced therethrough.

As will be apparent, the inner diameter of the annular series of support-engaging fingers, as determined by the ends 20a, is less than that of the support aperture 1, while the outer normal diameter of the series of fingers 15, as determined by the ends 20, is greater than that of the support aperture 1.

From the above it will be apparent that the retainer and stud-engaging fastener part, herein illustrated as the flanged sheet metal nut 10 may be pre-assembled and attached as a unit to the support 2 by inserting the barrel 12 of the nut device 10 and the surrounding support-engaging means 18 through the aperture 1 of the support 2. The ends 20a of the support-engaging fingers 18 furthestmost removed from the base part 15 readily enter the aperture 1 and the fingers 18 will be flexed toward a position parallel with the walls of the aperture until the unit is fully inserted, when the fingers 18 snap to a divergent oblique position and lockingly engaging the support 2. The unit is thus securely clamped to the support 2 which is positioned between the base portion 15 and ends 20 of the fingers 18.

The locking action of the fingers 18 resists any tendency of the unit being displaced from the support 2 toward the retaining rim side, as for example under the clamping action of a screw (not shown) which may be passed through a part to be attached to the support (not shown) into threaded engagement with the barrel 11 at its end away from the base portion 15. During such clamping action the fingers 18 are tightly wedged between the barrel 11 and support 2.

In Figs. 5, 6 and 7 there is illustrated a modified form of a mounting in which the unit, and particularly the stud-engaging fastener member, is non-rotatively mounted in the support.

According to this form of the invention a bearing portion of the stud-engaging fastener part, for example the flange 12a of the nut member 10 is formed with two or more inward turned lugs 25 extending through and beyond openings 26 in the base portion 15 of the retainer or attaching member. The protruding ends of these lugs are adapted to be seated in radial elongations 2a of the support aperture 1, and thus prevent rotation of the fastener unit in the support 2.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A fastener unit adapted to be mounted in an aperture in a support and comprising a stud-engaging fastener part having a head adapted to overlie the portions of one face of the support adjacent to the aperture and a stud-receiving barrel portion adapted to project through said aperture, and a retainer member comprising a base provided with an integral flange overlying the head of the stud-engaging fastener, and integral resilient members adapted to project through the support aperture, said resilient members having opposed end or shoulder portions one of which engages the barrel and the other being adapted to engage the opposite face of the support to the fastener part head.

2. A fastener unit according to Claim 1 wherein the retainer member comprises a base having an aperture through which the barrel extends and an annular flange overlying the fastener part head, whereby the opposite faces of the said head are held between the annular flange and portions of the base.

3. A fastener unit according to either of the preceding claims wherein the resilient members comprise fingers extending obliquely to the axis of the barrel, the fingers being connected with the base of the retainer by a resilient arm or the like whereby said fingers may be forced through the aperture in the support by a snap-fastener like action.

4. A fastener unit according to any one of the preceding claims wherein a series of resilient members or fingers are provided spaced circumferentially of the barrel.

5. A fastener unit according to any one of the preceding claims wherein means are provided for locking the stud-engaging fastener part, and retainer against relative rotation, said means also being adapted to lock the unit against rotation relative to a support when the unit is assembled thereon.

6. A fastener unit adapted to be mounted on an apertured support substantially as described with reference to Figs. 1 to 4 of the accompanying drawings.

7. A fastener unit adapted to be mounted on an apertured support substantially as described with reference to Figs. 5 to 7 of the accompanying drawings.

Dated this 10th day of June, 1948.

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FIG. 1.

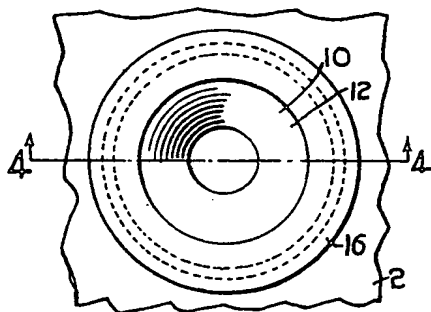


FIG. 2.

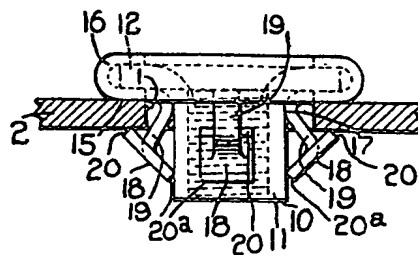


FIG. 3.

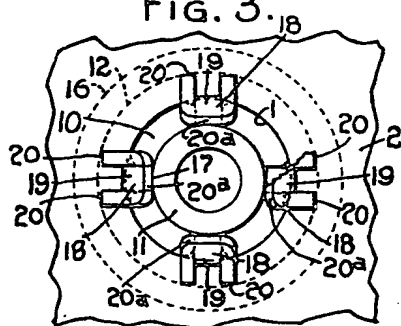


FIG. 4.

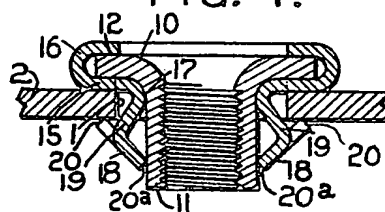


FIG. 5.

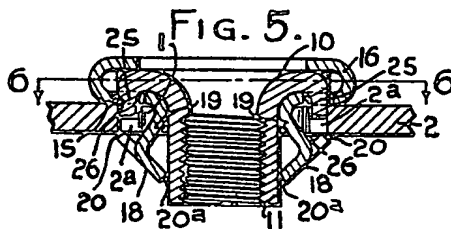


FIG. 6.

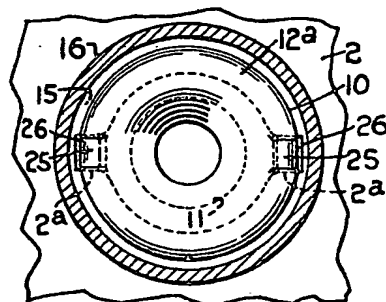
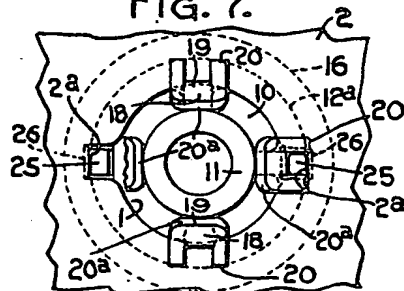


FIG. 7.



[This Drawing is a reproduction of the Original on a reduced scale.]

